

Diversity of post-harvest phenotypic traits among the CIAT cassava germplasm collection

Session name: QUALITY FOODS: Postharvest loss prevention, storage and processing

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236 genotypes of the CIAT germplasm collection representative of seven diversity groups of Latin America (Amazon, Andean, Caribbean, Savanna, Dry Atlantic forest, Humid Atlantic forest, and South American rainforest) were grown at CIAT during 2014-2017. Roots from each group showed specific postharvest quality traits. Savanna, Caribbean, and South American rainforest genotypes had the highest dry matter (39.0-39.8% wb). Andean genotypes had the lowest cyanide content and shortest boiling time (average 109 ppm db and 34 mins, respectively). In contrast, Amazon genotypes had the highest cyanide content and longest cooking time (average 885 ppm db and 56 mins, respectively). These traits may reflect different selection criteria corresponding to different uses over centuries of cassava domestication: In the Andean region, cassava is commonly consumed as boiled fresh roots, and hence low cyanide and short boiling time traits may have been preferentially selected. In the Amazon region cassava is fermented to prepare farinha; for which boiling time and cyanide are less important traits. Humid Atlantic forest and Savanna genotypes had the lowest and highest postharvest physiological deterioration (PPD) at respectively 22% and 43%. Across diversity groups, the majority of genotypes had relatively low cyanide with 137 out of 236 below 200 ppm db.